

ABSTRACT OF THE DISCLOSURE

In electric motor assemblies, separating the x and y coils may achieve significant advantages. An advantageous design includes pairs of interacting magnet array/coil arrays. Separated coil arrays are provided, with a coil array on an arm connected to a following stage, and another coil array on a stage base (the stage being one to which is attached magnet arrays). Positioning devices, moving magnet motor assemblies, moving coil motor assemblies, and methods of driving a stage are provided. By differential driving and creation of torques about the x and y axes, a stage may be driven in six independent degrees of freedom.

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